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10/590,375

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Yan Fu

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EXAMINER

ELLIOTT IV, BENJAMIN H

ART UNIT

PAPER NUMBER

2419

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/590,375	Applicant(s) FU ET AL.	
	Examiner BENJAMIN ELLIOTT	Art Unit 2419	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/05/2007 and 6/29/2007(2)</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-10 have been examined and are pending.

Information Disclosure Statement

2. Initialed and dated copies of Applicant's form 1449 submitted 2/05/2007 and 6/29/2007 (2) are attached to the instant office action.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that

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the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-5 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Publication 2007/0115975 A1 to Zhang, in view of US 2003/0147392 A1 to Hayashi et al. (hereinafter "Hayashi").

As per Claim 1, Zhang discloses **a method for implementing multicast services** ([0012]. The invention relates to authentication of multicast users trying to access a multicast network.), **comprising:**

presetting a mapping relation between a multicast user address and a multicast group address ([0007]. ACLs (Access Control Lists) contain information that includes corresponding relationships between multicast source addresses (this corresponds to "multicast user address") and multicast addresses (this corresponds to "multicast group addresses").);

according to the multicast user address and multicast group address carried in the request packet, determining whether the multicast group address in the request packet matches corresponding multicast group address of the multicast user among the preset mapping relation ([0008]. In

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accordance with ACL rules, if a multicast address in ACL corresponds to a multicast source address, multicast messages with the multicast source address as the source address and the multicast address as the destination address are permitted to enter into the multicast network.);

if yes, permitting the multicast user to join in the multicast group, otherwise, rejecting the multicast user from joining in the multicast group

([0010]. When a switch or router receives the multicast message (this corresponds to "packet"), it determines if the multicast source message is within range as specified by the ACL to enter the multicast network by means of forwarding the multicast message. If the multicast source address is not within range, the message is not allowed and the message is discarded.).

Zhang is silent on obtaining the message ("packet") in the form of a "request".

However, Hayashi discloses **obtaining a request packet sent by the multicast user who requests to join in the multicast group** ([0007]. Client hosts to a routing device have request means for transmitting a multicast control packet for requesting joining or leaving a multicast group to a routing device, wherein the routing device "obtains" the "request" packet.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Zhang to include **obtaining a request packet sent by the multicast user who requests to join in the multicast group** as taught by Hayashi to inform client hosts of changes in

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the multicast communications such as leaving, joining, or authentication failure ([0005]).

As per Claim 2, Zhang discloses **the method according to claim 1, further comprising, establishing a mapping relation between the multicast user address and a multicast authority, and establishing a mapping relation between the multicast authority and the multicast group address** ([0048].

The master multicast authentication server (“authority”) contains information corresponding to the relationship of the multicast address (“group”) and the multicast source address (“user”).);

wherein the step of determining whether the multicast group address in the request packet matches corresponding multicast group address of the multicast user among the preset mapping relation ([0048]. Only multicast source addresses in the authentication table are allowed to send messages (join) to the multicast address.), **further comprises:**

determining whether the multicast group address in the request packet corresponds to the multicast authority ([0068]. After receiving an authentication request from the master server, the slave server judges if the multicast source address corresponds to a multicast address is in its authentication table. [0063]. The authentication table contains information including: multicast address, attribute of multicast address, and the corresponding relationship between the multicast address and the multicast source address. [0067]. The message (“packet”) is passed from the master authentication server to the slave authentication server in the form of an

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authentication request. The content of this request contains information from the master's authentication table.), **if yes,**

determining whether the multicast group address in request packet

matches that corresponding to the multicast authority ([0068]. The slave

authentication server determines if the multicast address of the message is within

the range of the multicast addresses of its table.), **if yes,**

permitting the multicast user to join in the multicast group, otherwise

rejecting the multicast user from joining in the multicast group ([0068]. If it

matches, the authentication request is successful, the multicast message is

registered, and the slave server permits it to enter the network.);

if the multicast group address in the request packet corresponds to no

multicast authority, rejecting the multicast user from joining in the

multicast group ([0069]. If the multicast address of the multicast message does

not match, or within the range of the slave's authentication table, an d an re-

initiation request is not needed, the multicast message is not permitted to enter

the network.).

As per Claim 3, Zhang discloses **the method according to claim 2, if the multicast group address in the request packet corresponds to no multicast authority, further comprising:**

determining whether the multicast user is a super user, if yes, permitting

the multicast user to join in the multicast group, otherwise rejecting the

multicast user from joining in the multicast group ([0048]. A user may modify

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the master authentication server tables to allow or restrict access to a multicast address.).

As per Claim 4, Zhang discloses **the method according to claim 1, wherein, the mapping relation between the multicast user address and multicast group address is one-to-many** ([0048]. The invention allows for at least a many-to-many mapping relationship.).

As per Claim 5, Zhang discloses **the method according to claim 2, wherein, the mapping relation between the multicast user address and multicast authority is one-to-many or many-to-one; the mapping relation between multicast group address and multicast authority is one-to-many or many-to-one** ([0048]. The invention allows for at least a many-to-many mapping relationship. The authentication tables contain information regarding the relationship between the multicast source address and the multicast address ("group"). [0050]. If when a particular slave authentication server receives a request from a node, and the slave server does not have the address the node is looking for, that slave sends a message to the requesting node with addresses of other multicast authentication servers. It is this way the source and group addresses correspond to multicast authority addresses in the many-to-many relationship.).

As per Claim 8, Zhang is silent on snooping with IGMP.

However, Hayashi discloses **the method according to claim 1, wherein, the step of obtaining the request packet sent by the multicast user who**

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requests to join in the multicast group comprises:

snooping the request packet by using an Internet Group Management

Protocol (IGMP) ([0034]. IGMP is a protocol used to initiate requests for a user to join or leave a multicast group.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Zhang to include IGMP to send requests as taught by Hayashi to first request a connection between a requesting node and a multicast address before transmission of data ([0004]).

As per Claim 9, Zhang is silent on incorporating an IGMP proxy.

However, Hayashi **discloses the method according to claim 1, wherein, the step of obtaining the request packet sent by the multicast user who requests to join in the multicast group comprises:**

an IGMP Proxy terminating the request packet and requesting upper-level network equipment for multicast recourses as a proxy of the multicast user

([0044]. The IGMP packet is processed by the routing device. Authentication is carried out by an authentication server such as a RADIUS server (proxy server).).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Zhang to include using a proxy for the user as taught by Hayashi to ensure proper authentication before allowing a multicast user to enter a network ([0044]).

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As per Claim 10, Zhang is silent on the requesting packet being based on the IGMP protocol.

However, Hayashi discloses **the method according to claim 1, wherein, the request packet is based on IGMP** ([0034]. IGMP is a protocol used to initiate requests for a user to join or leave a multicast group.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Zhang to include IGMP to send requests as taught by Hayashi to first request a connection between a requesting node and a multicast address before transmission of data ([0004]).

5. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang and Hayashi as applied to claim 1 above, and further in view of US Patent 6,683,887 B1 to Huang et al. (hereinafter "Huang").

As per Claim 6, both Zhang and Hayashi are silent on either level 2 or level 3 equipment having certain parameters of their of their characteristics incorporated into multicast user addresses.

However, Huang discloses **the method according to claim 1, wherein, the multicast user address comprises a frame number, a slot number and a port number of a level-2 network equipment to which the multicast user is connected;**

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or a frame number, a slot number, a port number, a Virtual LAN (VLAN) identifier, and an IP address of a level-3 network equipment to which the multicast user is connected (Col. 31, lines 14-55. An ADSL (asymmetrical digital subscriber line) bank control unit is used to transmit cell packets containing information including ports, frame sizes, and time slots, and further transmitted to multiple destinations in the multicast group.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Zhang and Hayashi to include information regarding level-2 equipment as taught by Huang to increase data integrity of cell packets in an ADSL frame to support broadband traffic (Col. 4, lines 47-57).

As per Claim 7, Zhang and Hayashi are silent on the level-2 equipment being either DSL or LAN switcher.

However, Huang discloses **the method according to claim 6, wherein, the level-2 network equipment is a Digital Subscriber Line (DSL) broadband access equipment or a Local Area Network (LAN) switcher; the level-3 network equipment is a router or a level-3 switcher** (Col. 31, lines 14-55. An ADSL (asymmetrical digital subscriber line) bank control unit is used to transmit cell packets containing information including ports, frame sizes, and time slots, and further transmitted to multiple destinations in the multicast group.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Zhang and Hayashi

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to include DSL level-2 equipment as taught by Huang to increase data integrity of cell packets in an ADSL frame to support broadband traffic (Col. 4, lines 47-57).

Conclusion

6. Prior art made of record not relied upon:

US Patent Publication 2003/0231629 A1 to Banerjee et al. discloses a system and method for gathering multicast content data.

US Patent Publication 2003/0073453 A1 to Basilier discloses a system and method for multicast communications.

US Patent 6,567,851 B1 to Kobayashi discloses a multicast session management device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BENJAMIN ELLIOTT whose telephone number is (571)270-7163. The examiner can normally be reached on Monday thru Friday, 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571)272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BENJAMIN ELLIOTT/
Examiner, Art Unit 2419

/Hassan Kizou/
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